

We Claim:

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12. An optical device when subjected to localized heating, wherein the device comprises an optical waveguide and a material which absorbs a predetermined wavelength of light, the localized heating causing permanent changes in optical properties of a region of the waveguide and occurring as a result of exposing the device to light of the predetermined wavelength at an energy level sufficient to heat the material, the material being arranged to transfer at least some of the heat to the region and to minimize optically-induced alterations of the waveguide whilst the device is exposed to the light.

13. An optical device in accordance with claim 12 wherein the material is located outside the waveguide.

14. An optical device in accordance with claim 12 wherein the material is located within the waveguide.

15. An optical device in accordance with claim 12 wherein the material comprises a substrate on which the waveguide is formed.

16. An optical device in accordance with claim 12 wherein the device comprises an interferometric system and the waveguide comprises one arm of the interferometric system.

17. An optical device in accordance with claim 12 wherein the localized heating causes thermal relaxation, thermal diffusion or induces damage in the material.

18. An optical device in accordance with claim 12 wherein the localized heating is used to write a grating structure in the waveguide.

19. An optical device when subjected to localized heating, wherein the device comprises an optical waveguide formed on a substrate selected to absorb a predetermined wavelength of light, the waveguide being selected to be substantially transparent to the predetermined wavelength, wherein the localized heating causes permanent changes in optical properties of a region of the waveguide, and occurs as a result of exposing the device to light of the predetermined wavelength at an energy level sufficient to heat the substrate.

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20. An optical device in accordance with claim 19 wherein the predetermined wavelength of light is a sub-micron wavelength.

21. An optical device in accordance with either claim 19 or claim 20 wherein the predetermined wavelength of light is absorbed by the substrate substantially at an interface with the waveguide.

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